

SEP 16 2003

TECH CENTER 1600/2900

2003

412- Transgenic Poplar Trees Comprising
Glutamine Synthetase From Pine Having Improved Nitrogen
Metabolism and Methods of Making and Using the Same

<140> 097763.005

2001-04-20

<30> FBI/US99/18267

1999-08-11

21,112,000,032

1993-98-11

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30

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212 18

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420-

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18

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1423

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~22~ Pinus sylvestris

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 Asp Met Arg Ser Lys Ala Arg Ser Leu Ser Gly Pro Val Ser Ser Val
 35 40 45
 Lys Glu Leu Pro Lys Trp Asn Tyr Asp Gly Ser Ser Thr Gly Glu Ala
 50 55 60
 Gln Gly His Asp Ser Glu Val Ile Leu Tyr Pro Gln Ala Ile Phe Arg
 65 70 75 80
 Asp Pro Phe Arg Arg Gly Lys His Ile Leu Val Ile Cys Asp Ala Tyr
 85 90 95
 Ser Pro Asn Gly Thr Ala Ile Pro Ser Asn Lys Arg Ala Ala Ala
 100 105 110
 Lys Ile Phe Asn Glu Lys Ala Val Ser Asp Glu Glu Thr Trp Tyr Gly
 115 120 125
 Leu Glu Gln Glu Tyr Thr Leu Leu Gln Lys Asp Val Lys Trp Pro Leu
 130 135 140
 Gly Trp Pro Ile Gly Gly Tyr Pro Gly Pro Gln Gly Pro Tyr Tyr Cys
 145 150 155 160
 Gly Val Gly Ala Asp Lys Ala Trp Gly Arg Asp Ile Val Asp Ala His
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 Tyr Lys Ala Cys Leu Tyr Ser Gly Ile Asn Ile Ser Gly Ile Asn Gly
 180 185 190
 Glu Val Met Pro Gly Gln Trp Glu Phe Gln Val Gly Pro Ser Val Gly
 195 200 205
 Ile Ser Ala Ala Asp Glu Leu Trp Cys Ala Arg Phe Ile Met Gln Arg
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 Ile Thr Glu Lys Ala Gly Val Val Leu Ser Phe Asp Pro Lys Pro Ile
 225 230 235 240
 Glu Gly Asp Trp Asn Gly Ala Gly Cys His Thr Asn Tyr Ser Thr Lys
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 Ser Met Arg Lys Glu Gly Gly Phe Glu Val Ile Lys Lys Ala Ile Glu
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